

CLAIMS

1. An instrument cluster comprising:
a display including at least one graphical image;
at least one light source positioned to illuminate at least a portion of said graphical image;
a circuit board including a plurality of electronic components for controlling operational characteristics of an instrument cluster wherein said light source is supported on said circuit board; and
at least one light housing supported by said circuit board and including a first wall portion with an inclined extension extending over said light source wherein said inclined extension includes a reflective surface facing said light source for directing light to illuminate said graphical image.
2. The cluster of claim 1 wherein said light housing includes at least one channel having a generally flat base portion defining a reflective surface.
3. The cluster of claim 2 wherein said channel is defined by a U-shaped cross-section including a pair of sides extending upwardly from said base portion.
4. The cluster of claim 2 wherein a bottom surface of said base portion directly engages said circuit board adjacent to said light source.

5. The cluster of claim 4 wherein said light housing includes an intermediate portion and a second wall portion transitioning from said base portion of said channel to said intermediate portion wherein said intermediate portion is positioned vertically higher relative to said circuit board than said base portion to define a gap between said light housing and said circuit board.
6. The cluster of claim 5 wherein said electronic components are mounted to said circuit board directly underneath said intermediate portion within said gap.
7. The cluster of claim 5 wherein said light housing includes a beveled surface extending from said intermediate portion toward said display, said beveled surface cooperating with said inclined extension, said channel, and said intermediate portion to provide a plurality of reflect surfaces to evenly illuminate said graphical image.
8. The cluster of claim 2 wherein said at least one channel comprises a plurality of channels each defining a reflective surface to evenly illuminate a desired area of said graphical image.
9. The cluster of claim 1 wherein said display includes a white reflective layer applied to display areas that do not have illuminated graphics.
10. The cluster of claim 9 wherein said display includes a layer of anisotropic film applied to a surface opposite from said white reflective layer.

11. A method for illuminating an instrument cluster comprising the steps of:
 - supporting a light housing on a circuit board;
 - supporting a display including at least one graphical image with the light housing;
 - mounting a light source on the circuit board to illuminate at least a portion of the graphical image;
 - extending a reflective portion of the light housing over the light source; and
 - reflecting light generated by the light source with the reflective portion to illuminate the graphical image.
12. The method of claim 11 including the steps of forming at least one channel having a generally flat base portion in the light housing and reflecting light from the reflective portion toward the base portion.
13. The method of claim 12 further including the steps of forming the channel with a U-shaped cross-section with a pair of sides extending upwardly from the base portion, and mounting a bottom surface of the base portion directly to the circuit board.

14. The method of claim 12 further including the steps of forming the light housing with an intermediate portion extending upwardly from the base portion, spacing the intermediate portion apart from the circuit board to define a gap, and mounting cluster control electronic components to the circuit board underneath the intermediate portion within the gap.

15. The method of claim 14 further including the steps of forming the light housing with a beveled portion extending from the intermediate portion toward the display and using the reflective portion, channel, intermediate portion, and beveled portion to provide multiple reflective surfaces for illuminating the graphical image.

16. The method of claim 11 including the step of applying a reflective white layer to areas on the display that do not have illuminated graphics.

17. The method of claim 16 including the step of applying a layer of anisotropic film to the display.